TN 023 - Star Rating System

A guide to how WatchGas scores detector health, how each score is calculated, and how the rating is displayed and managed in the RTR cloud portal.

Applies to: SST1 / SST1e (single-gas), SST4 & SST5 (multi-gas) detectors, via the Device link app, Docking station and SST RTR web reporting software.

1. What the star rating is

Every WatchGas detector gets a simple health score shown as 0 to 5 stars. One glance tells the user whether a detector is in great shape or needs attention — no technical knowledge required. The rating appears on the detector's maintenance screen in the Device link app and is synced to the SST RTR software so a manager can see the health of an entire fleet remotely.

- 3-5 stars = excellent, fully healthy, ready for use.
- 1–2 stars = ageing or losing performance, good for use
- 0 stars = action required now (replace a sensor, charge the battery, or re-run a failed test).

The rating supports half-stars (e.g. 4½), so the trend is easy to follow as a detector ages.

Important: *A sensor is still good for use as long as it can be calibrated. The star rating is not a pass/fail of usability — it is a performance indicator. Falling stars tell the user the sensor is gradually losing sensitivity, so they can monitor its performance and plan replacement ahead of time, rather than be caught out by a failure. A sensor only becomes unusable when it can no longer pass calibration (shown as 0 stars).*

2. How the overall score is built

The single star rating you see is the average of several independent health checks, each scored on the same scale and then combined. One weak area (say, a old sensor) pulls the overall score down and gets noticed – exactly what you want for safety equipment.

- **Sensor health —** how much sensitivity each gas sensor has kept (the most important factor).
- **Battery health —** whether the detector battery holds enough charge.
- **Age (product lifetime) —** how long the detector has been in service, or how much life it has left.
- **PCB —** the core electronics, rated full health unless a fault is detected.

3. How customers use it

- **Fleet health at a glance** — a safety manager sees which detectors are healthy and which need attention across the whole fleet.
- **Predictive maintenance** — falling sensor stars warn you before a sensor fails, so replacements are scheduled calmly instead of causing downtime.
- **Compliance confidence** — any unit that fails a bump or calibration shows 0 stars, making non-compliant detectors stand out immediately.
- **Lifecycle & budgeting** — age stars highlight detectors approaching end of life, helping plan replacements and budgets ahead of time.
- **Remote oversight** — ratings sync to the SST RTR software, turning a field reading into a remote, fleet-wide management view.

4. Exact star thresholds (engineering reference)

Internally each item is scored 0–10; the app shows that as 0–5 stars (it divides by two, which is why half-stars appear). The tables below give the exact boundaries used to assign stars for every part.

4.1 Sensor health (per gas sensor)

Each sensor is scored on how much sensitivity it has retained, measured as the latest calibration response as a percentage of the original factory calibration.

Sensitivity retained (latest cal ÷ factory cal)	Stars
Above 60%	★★★★★ (5)
55% - 60%	★★★★ (4)
50% - 55%	★★★ (3)
45% - 50%	★★ (2)
40% - 45%	★ (1)
30% - 40%	½
Below 30%	0
Failed self-test, bump or calibration (SST1), or a new/uncalibrated sensor	0 — replace / calibrate

4.2 Battery — SST4 & SST5 (by charge cycles)

Battery charge cycles	Stars
Under 600	★★★★★ (5)
600 - 699	★★★★ (4)
700 - 749	★★★ (3)
750 - 799	★★ (2)
800 or more	★ (1)
Battery flat / not charged	0

4.3 Battery — SST1 / SST1e (by estimated charge remaining)

For single-gas units the app estimates remaining battery from run-time, alarm-time and hibernation, as a percentage of initial capacity.

Estimated charge remaining	Stars
Above 50%	★★★★★ (5)
20% - 50%	★★★★½ (4½)
15% - 20%	★★★ (3)
10% - 15%	★ (1)
10% or less	0

4.4 Age — SST4 & SST5 (time in service)

Time since first use	Stars
Under 2 years	★★★★★ (5)
2 - 2.5 years	★★★★ (4)
2.5 - 3 years	★★★ (3)
3 - 3.5 years	★★ (2)
3.5 - 4 years	★ (1)
Over 4 years	0

4.5 Age — SST1 serviceable (time in service)

Time since first use	Stars
Under 2 years	★★★★★ (5)
2 - 2.5 years	★★★ (3)
2.5 - 3 years	★★ (2)
3 - 3.5 years	★ (1)
3.5 - 4 years	½
Over 4 years	0

4.6 Age — SST1 fixed-life (activation time remaining)

Life remaining	Stars
More than 4 months	★★★★★ (5)
3 - 4 months	★★★ (3)
2 - 3 months	★★ (2)
45 - 60 days	★ (1)
24 hours - 45 days	½
Under 24 hours	0

4.7 Electronics (PCB)

The core electronics are rated at full health (★★★★★ / 5) unless a hardware fault is reported by the detector.

4.8 Overall (Total)

The Total is the average of the age, battery, electronics and sensor scores, then rounded and shown as 0-5 stars. A single failing category visibly drags the Total down

5. Star rating in the SST RTR software

When a detector is tapped with the Device link app, its health scores sync to SST RTR software. The portal shows the same 0–5 star ratings against each detector, and lets a site administrator define what counts as 'needs attention' for that site.

5.1 Where the stars are shown

- **Detector details page** — the Total, Battery, Age, PCB and each individual gas sensor are shown as star icons.
- **Health history list** — every health check-in is recorded, so you can see a detector's stars trend over time.
- **Site dashboard** — counts how many detectors currently 'require attention' for the site.

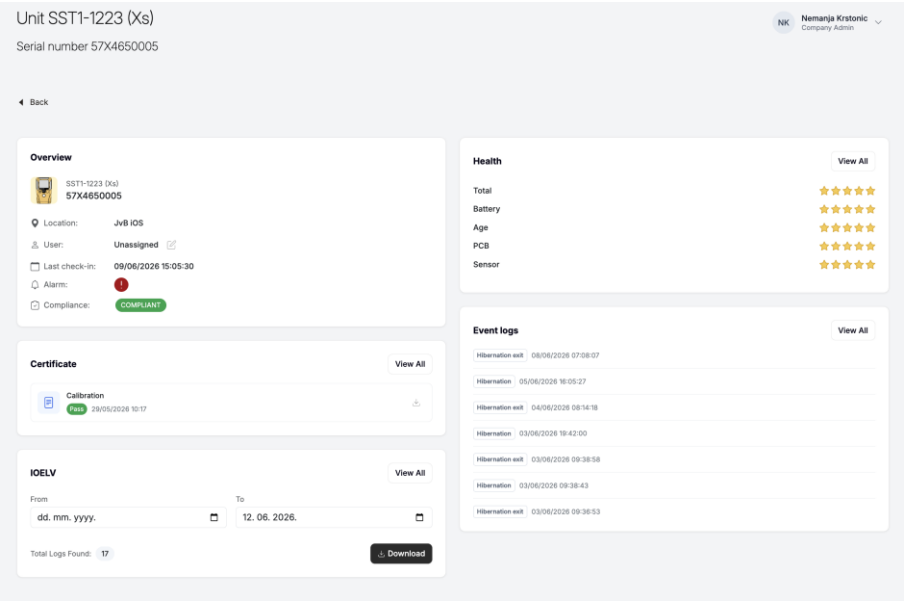

Fig. 1 — RTR detector details: Total, Battery, Age, PCB and per-sensor star ratings

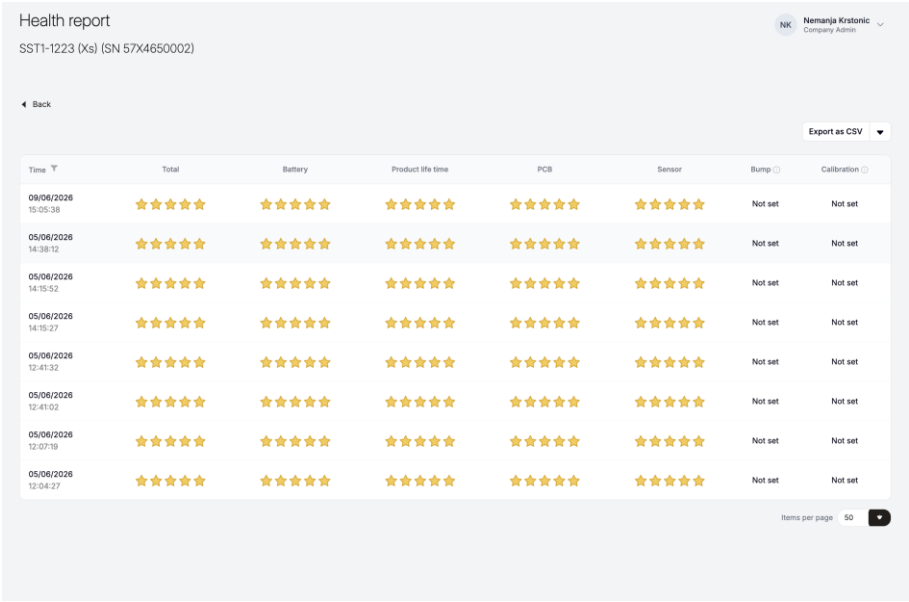

Fig. 2 — RTR health history: star ratings recorded over time

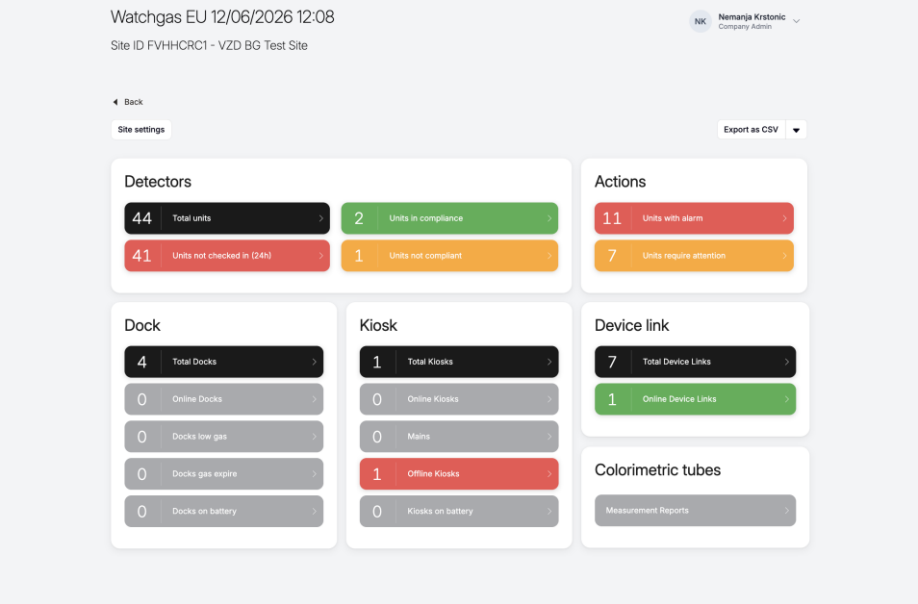

Fig. 3 — RTR dashboard: Low star ratings added to “units require attention”

5.2 Setting attention levels (Site Settings)

Each site has an “Attention level for gas detectors” screen where an administrator sets the minimum acceptable star rating for each category. A detector is flagged as 'Requires attention' as soon as ANY category falls below its set level — so you decide how strict each site should be.

- **Total** — minimum acceptable overall rating.
- **Battery** — minimum battery rating.
- **Sensor** — minimum rating for any single sensor (the weakest sensor is used).
- **Product lifetime (Age)** — minimum age / product-lifetime rating.
- **PCB** — minimum electronics rating.

The same screen also controls two related fleet rules: how many hours before an un-tapped detector is marked 'Not checked in', and after how many months an inactive detector is automatically removed from the site. A site logo for calibration certificates can be set here too.

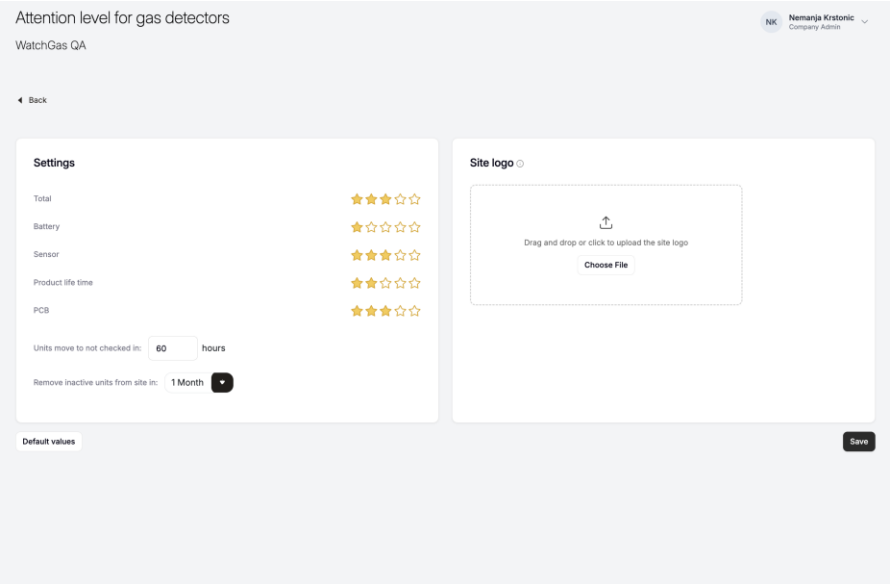

Fig. 4 — RTR Site Settings: per-category attention levels (star pickers)

Example: if a site sets the Sensor attention level to 3 stars, any detector whose weakest sensor drops to 2½ stars or below is immediately flagged for the safety manager — well before it would fail a compliance test.

6. In short

The star rating turns a set of technical health checks — sensor sensitivity, battery, age and electronics — into one number anyone can understand. The detector calculates it, the Device link app shows it, and the RTR portal lets managers monitor it fleet-wide and set their own attention thresholds. The result: workers stay safe, compliance is obvious, and customers manage their fleets proactively rather than reactively.